

## The Diagnosis and Management of Hyperlipidemia

Increasing attention is being focused on the diagnosis and treatment of hyperlipidemia since its recognition as one of the principal risk factors in the development of atherosclerosis and its serious sequelae such as myocardial and cerebral infarction. The practicing physician plays a key role in both the identification and the management of hyperlipidemia. Not only is reducing abnormally high serum cholesterol and triglyceride levels presumably of value in preventing atherosclerosis, such reduction can also control other distressing manifestations of familial hyperlipidemia such as xanthomatosis and pancreatitis, which often accompany pronounced forms of this disease.

Fortunately, the identification of hyperlipidemia is not difficult and can be performed by simple and well standardized laboratory procedures. Following at least a 12-hour fast, serum cholesterol and triglyceride levels should be no higher than those listed below for each age group.

Age	Upper Level of Normal	
	Cholesterol (mg/100 ml)	Triglycerides (mg/100 ml)
0-19 .....	230	140
20-29 .....	240	140
30-39 .....	270	150
40-49 .....	310	160
50-59 .....	330	190

If the patient is *not* fasting, glycerides greater than 350 mg per 100 ml should be used as a criterion. However, since serum cholesterol is not influenced acutely by diet, the same criteria can be used as for the fasting patient. Analysis of cord blood drawn at birth may also identify at least homozygous infants with familial hyperlipidemia.

If either elevation of serum cholesterol or triglyceride or both is identified by means of primary laboratory screening, the serum lipoprotein electrophoresis, when used as a secondary screen, can usually distinguish between the five different types of hyperlipidemia except, perhaps, for Type III which may require dietary manipulation and serum ultracentrifugation. The physician should also be alert to exclude hyperlipidemia secondary to such diseases as diabetes melitus, myxedema and the nephrotic syndrome.

Specific identification of the five types of hy-

perlipidemia is important since its management is type-specific. For instance, Type I is largely due to dietary fat intolerance and can be best controlled by reduction of dietary fat to 15 percent or less of total calories. Although Types II, IV and V may also require dietary fat restriction, Types III and IV are more sensitive to changes in carbohydrate intake. For instance, Type III is best managed by a balanced diet where 40 percent of calories are derived from carbohydrates, 40 percent from fat (half of which should be composed of unsaturated fatty acids) and 20 percent from protein. Cholesterol intake should also be restricted by cautioning the patient not to eat either "organ meats" such as liver, or egg yolks.

Drug therapy is also type-specific. Although Type I does not require drugs, clofibrate (Atromid-S)<sup>®</sup> may be useful in all of the other four, and therapeutic agents such as cholestyramine and d-thyroxine also have a role.

Since the management of hyperlipidemia requires the kind of patient cooperation required for the long-term treatment of diabetes, the physician should turn to such authoritative sources as those referred to below before instituting what may be a decided change in the patient's lifestyle. Particular emphasis should be placed on the initial identification and vigorous management of hyperlipidemia in childhood, adolescence and early adult life since it is presumed that sequelae such as atherosclerosis can best be prevented by the early institution of a realistic program of dietary management supplemented, when necessary, by drugs.

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## REFERENCES

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